

Listing Of The Claims

Claims 1-5 (Cancelled).

6. (Currently amended) An autothermal reforming module for use in a compact fuel processor, comprising:
 - a module inlet for receiving a feed stream;
 - a module outlet for producing an effluent stream;
 - a fixed bed reactor having a reactor inlet, a reactor outlet, and autothermal reforming catalyst;
 - an inlet spiral passage in fluid communication with the module inlet to the reactor inlet;
 - an outlet spiral passage in fluid communication with the reactor outlet to the module outlet;
 - a flow distribution manifold in fluid communication with the reactor inlet for evenly distributing flow into the reactor; and
 - a flow collection manifold in fluid communication with the reactor for directing hot reactor product to the reactor outlet; and
 - a cover fitted to a side of the inlet spiral passage;

wherein the flow distribution manifold is disposed between the reactor and the cover for evenly distributing flow into the reactor; and wherein the feed stream is introduced to the module inlet, passes through the inlet spiral passage, and is heated by the hot reactor product passing through the outlet spiral passage.
7. (Original) The autothermal reforming module described in claim 6, wherein the autothermal reforming catalyst includes supported catalyst particles.
8. (Original) The autothermal reforming module described in claim 6, wherein the autothermal reforming catalyst includes monoliths.

9. (Original) The autothermal reforming module described in claim 6, wherein the autothermal reforming catalyst includes a partial oxidation catalyst.
10. (Original) The autothermal reforming module described in claim 9, wherein the autothermal reforming catalyst includes a steam reforming catalyst.
11. (Original) The autothermal reforming module described in claim 6, wherein the feed stream is a mixture of air, steam, and hydrocarbon fuel.

Claims 12-16 (Cancelled).

17. (New) A module for use in a compact fuel processor, comprising:
 - a module inlet for receiving a feed stream;
 - an inlet spiral passage in fluid communication with the module inlet;
 - a flow distribution manifold in fluid communication with the inlet spiral passage and a reactor inlet;
 - a reactor having a reactor inlet, a reactor outlet, and catalyst;
 - an outlet spiral passage in fluid communication with the reactor outlet;
 - a module outlet in fluid communication with the outlet spiral passage for producing an effluent stream; and
 - a cover fitted to a side of the inlet spiral passage;wherein the flow distribution manifold is disposed between the reactor and the cover for evenly distributing flow into the reactor and wherein the feed stream is introduced to the module inlet, passes through the inlet spiral passage, and is heated by hot reactor product passing through the outlet spiral passage.

18. (New) The module of claim 17, further comprising a flow collection manifold in fluid communication with the reactor outlet for directing a hot reactor product to the outlet spiral passage.
19. (New) A module for use in a compact fuel processor, comprising:
 - a module inlet for receiving a feed stream;
 - an inlet spiral passage in fluid communication with the module inlet;
 - a reactor inlet piping in fluid communication with the inlet spiral passage;
 - a flow distribution manifold in fluid communication with the reactor inlet piping;
 - a reactor having a reactor inlet in fluid communication with the flow distribution manifold, a reactor outlet, and catalyst;
 - an outlet spiral passage in fluid communication with the reactor outlet;
 - and
 - a module outlet in fluid communication with the outlet spiral passage for producing an effluent stream.
20. (New) The module of claim 19, further comprising:
 - a flow collection manifold in fluid communication with the reactor outlet;
 - and
 - a reactor outlet piping in fluid communication with the flow collection manifold and the outlet spiral passage.
21. (New) A module for use in a compact fuel processor, comprising:
 - a module inlet for receiving a feed stream;
 - an inlet spiral passage in fluid communication with the module inlet;
 - a flow distribution manifold in fluid communication with the inlet spiral passage;

a reactor having a reactor inlet in fluid communication with the flow distribution manifold, a reactor outlet, and catalyst;
an outlet spiral passage in fluid communication with the reactor outlet;
and
a module outlet in fluid communication with the outlet spiral passage for producing an effluent stream;

wherein the module has a circular cross sectional configuration and the flow distribution manifold is centrally disposed for evenly distributing flow into the reactor.

22. (New) The module of claim 21, further comprising a flow collection manifold in fluid communication with the reactor outlet and wherein the flow collection manifold.
23. (New) The module of claim 21, further comprising a reactor inlet piping providing fluid communication between the inlet spiral passage and the flow distribution manifold.